



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,088	09/05/2003	David N. Rudo	RUDO121677	9931

26389 7590 06/28/2005

CHRISTENSEN, O'CONNOR, JOHNSON, KINDNESS, PLLC  
1420 FIFTH AVENUE  
SUITE 2800  
SEATTLE, WA 98101-2347

EXAMINER

YOON, TAE H

ART UNIT	PAPER NUMBER
----------	--------------

1714

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/656,088

Applicant(s)

RUDO

Examiner

Tae H. Yoon

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☒ Certified copies of the priority documents have been received in Application No. 09/807,560.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

Art Unit: 1714

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-26 are under 35 U.S.C. 103(a) as obvious over Rudo (US 5,176,951) in view of Silvestrini et al (US 4,610,688) or Kapadia et al (US 4,816,028), and further in view of Head (US 6,250,193) with or without Akahane et al (US 5,962,550).

Rudo discloses a method and composition and composition to reinforce a dental appliance or prosthesis. Rudo discloses that a synthetic resin containing dental structures can be reinforced by combining a lightweight woven fabric comprising aramid or polyethylene fibers (col. 4, line 1). The method involves applying one or more layers of a lightweight woven fabric to a dental structure to be reinforced, and typically covering the fabric with resin so that the fabric is not exposed (col. 4, lines 20-25). Fibers used to construct the fabric include Kevlar and Spectra (col. 2, line 40). The surface of fibers can be treated with plasma to enhance the bonding between the fiber and resin (col. 1, line 40). Furthermore, in claim 2 of Rudo's invention a cold gas plasma treatment is used to treat the fiber surface. The polymeric resin used can be acrylic resin and bis-GMA (col. 6, line 52). Rudo also discloses the type of dental structures that can be reinforced: retainer, bridges, splints, etc (col. 7, lines 5-28). Fabric reinforcement is also stronger when the threads of different layers of fabric do not run parallel with respect to each other (col. 6, line 1). For example, neighboring

Art Unit: 1714

layers can be set such that some of the threads from neighboring layers will form 45 degree angle relative each other (col. 6, line 5).

The instant invention further recites the use of a triaxial material.

The figure of Rudo does not show a detailed structure, however, the cross-section is looked like a triaxial configuration. Rudo also teaches Leno weaves at col. 5, lines 27-41 wherein various patents are incorporated by references. One of said patent, US 4,816,028 to Kapadia et al, teaches the Leno weaves having the triaxial configuration in Fig. 3. Silvestrini et al teach the triaxial configuration in Figs. 1 and 2. Furthermore, Head teaches that the triaxial configuration yields a product having superior mechanical properties, principally strength and stiffness, to the biaxial configuration at col. 1, lines 27-31. The braided materials (Kevlar and Spectra) and resins (acrylic resins such as bis-GMA resin) taught by Rudo are also used in the instant invention. Thus, said braided materials and resins would have a similar refractive index as in the instant invention. Also, it is well known in the art that the finished dental product should exhibit a homogeneous hue and color requiring the same or a similar refractive index as taught by Akahane et al.

It would have been obvious to one of ordinary skilled in the art at the time of invention to utilize the triaxial braided or woven fabric configuration taught by Silvestrini et al or Kapadia et al in Rudo since Rudo teaches Leno weaves and reinforcing a dental appliance or prosthesis comprising a resin and since it is well known in the art that triaxial configuration yields superior mechanical properties to the biaxial configuration as taught by head and since the figure of Rudo shows multiaxial braided fabric and since it


Art Unit: 1714

is well known in the art that the finished dental product should exhibit a homogeneous hue and color requiring the same or a similar refractive index as taught by Akahane et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tae H. Yoon whose telephone number is (571) 272-1128. The examiner can normally be reached on Mon-Thu.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Tae H Yoon  
Primary Examiner  
Art Unit 1714

THY/June 23, 2005